Title: IMPROVED SURFACE FOR USE ON IMPLANTABLE DEVICE

Abstract: An attachment surface for an implantable device has an irregular pattern (46,47,45,44,40) formed through a process including masking, chemical or electrochemical etching, blasting and debris removal steps. Surface material is removed from the implant surface without stress on the adjoining material and the process provides fully dimensional fillet radii at the base of the surface irregularities. This irregular surface is adapted to receive the ingrowth of bone material and to provide a strong anchor for that bone material which is resistant to cracking or breaking. The surface is prepared through an etching process which utilizes the random application of a maskant and subsequent etching in areas unprotected by the maskant. This chemical etching process is repeated a number of times as necessitated by the nature of the irregularities required in the surface. The blasting and debris removal steps produce microfeatures (150) on the surface that enhance the ingrowth of bone material.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPCI(7) : B4C 1/22; B08B 7/00; A61F 2/00
US CL : 216/11,34,87; 134/2,7,26,41

According to International Patent Classification (IPC) or to both national classification and IPC.

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 216/11,34,87; 134/2,7,26,41

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 5,258,098 A (WAGNER et al) 02 November 1993 (02.11.1993), col.4, lines 43-67, col.5, lines 9-21.</td>
<td>1,3-7,10-28,31-37,40-58</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,312,320 A (CHUNG) 17 May 1994 (17.05.1994), col.2, line 50-col.3, lines 54.</td>
<td>1, 3-7,10-28,31-58</td>
</tr>
</tbody>
</table>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

- * Special categories of cited documents:
  - "A" document defining the general state of the art which is not considered to be of particular relevance
  - "E" earlier application or patent published on or after the international filing date
  - "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  - "O" document referring to an oral disclosure, use, exhibition or other means
  - "P" document published prior to the international filing date but later than the priority date claimed
  - "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  - "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  - "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  - "+" document member of the same patent family

Date of the actual completion of the international search
22 June 2004 (22.06.2004)

Date of mailing of the international search report
29 JUL 2004

Name and mailing address of the ISA/US
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Authorized officer
Shamim Ahmed
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Form PCT/ISA/210 (second sheet) (July 1998)
Continuation of B. FIELDS SEARCHED Item 3:
EAST
(irregular or corrugated or uneven or textured or roughened) same etch and blast and clean
**INTERNATIONAL SEARCH REPORT**

**Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)**

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. □ Claim Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. □ Claim Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. □ Claim Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. □ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. □ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. □ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. □ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

□ The additional search fees were accompanied by the applicant’s protest.

□ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet(1)) (July 1998)